

Health Consultation

Kah Tai Lagoon: Initial Investigation of Upland Soils and Sediments

Port Townsend, Jefferson County, Washington

April 9, 2001

Contact information revised February 27, 2004

**Prepared by
Washington State Department of Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry**



Foreword

The Washington State Department of Health (DOH) has prepared this health consultation in cooperation with the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR is part of the U.S. Department of Health and Human Services and is the principal federal public health agency responsible for health issues related to hazardous waste. This health consultation was prepared in accordance with methodologies and guidelines developed by ATSDR.

The purpose of this health consultation is to identify and prevent harmful human health effects resulting from exposure to hazardous substances in the environment. The health consultation allows DOH to respond quickly to a request from concerned residents for health information on hazardous substances. It provides advice on specific public health issues. DOH evaluates sampling data collected from a hazardous waste site, determines whether exposures have occurred or could occur, reports any potential harmful effects, and recommends actions to protect public health.

For additional information or questions regarding DOH, ATSDR or the contents of this health consultation, please call the Health Advisor who prepared this document:

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Background and Statement of Issues

The Washington State Department of Health (DOH) prepared this health consultation in response to a request from the Washington State Department of Ecology to review and provide feedback on a draft sampling plan for the Kah Tai Nature Park site. The draft sampling plan was prepared by Ecology as part of an Initial Investigation of Upland Soils and Sediments at Kah Tai Lagoon nature park. The focus of this health consultation is primarily on upland soils. A previous health consultation prepared for the Kah Tai lagoon site (February 2001) concluded the site represented an indeterminate public health hazard due to limited data available, and that additional characterization of upland park soils and lagoon sediments was warranted.

The Kah Tai nature park site is located in Port Townsend, Jefferson County, Washington. The Kah Tai nature park was formed in the mid-1960s when the Port obtained permission to dispose of dredge tailings from the creation of the Port Boat Haven. Dredging, transport, and disposal of sediments can potentially involve exposure to heavy metals. The lagoon-fill project consisted of completely filling a lagoon south of Simms Way, and approximately 400 feet of the lagoon located north of Simms Way with dredge tailings from the Boat Haven project. Presently, the nature park consists of 40 acres of upland fill material and a lagoon that is approximately 46 acres in size and less than six feet deep. Fresh water enters Kah Tai lagoon from storm-water runoff, natural drainage, and precipitation. Approximately 645 acres of land area drain into the lagoon. A concrete culvert equipped with a partly functioning tide gate, maintains outflow from the lagoon and limited exchange of marine water between the marina and the lagoon during high tides.¹

Access to the lagoon beach is not restricted, although the south end of the lagoon is the only side with any degree of walk-able shoreline. There is a small area of shoreline along the east end of the lagoon near the Kah Tai nursing home; however, access requires navigation through dense brush and a marsh. Open space and a covered eating area for picnics are available in the upland fill area to park visitors.

During previous site visits, individuals were observed walking and jogging along trails, but were not observed using the lagoon for recreational activities such as wading, swimming, or fishing. There were no signs observed recommending against the use of the lagoon for recreational activities such as boating, swimming, or wading.

Discussion

To date, there have been no reports of community health concerns for the Kah Tai nature park received by the Jefferson County Health and Human Services Department or Ecology. Potential exposure to Kah Tai park and lagoon contaminants is associated with specific human activities. Recreational users of the Kah Tai lagoon may become exposed to contaminated sediments by walking the shoreline, wading, or swimming in the lagoon. In addition, recreational park users (upland park area) involved in activities which disturb soil may be exposed to contaminated soils

Kah Tai Park Surface Soil/Sub-Surface Soil Pathway

Presently, the extent of surface soil contamination within the Kah Tai park upland (fill area) is unknown and represents a data gap. Exposure to potentially contaminated surface soils may occur if individuals are involved in activities that disturb soils. In addition, exposure to contaminants in sub-surface soil may also occur if contaminated sub-surface soils are excavated and become surface soils. Potential routes of exposure include ingestion and dermal contact with contaminated surface soils. Characterization of surface soils (0-3 inches in depth) and sub-surface soils at the Kah Tai park is necessary to assess the public health implications of the soil pathway.

The proposed ten sampling stations for upland park soils are adequate for site characterization purposes during the initial investigation of Kah Tai nature park. Sampling locations should be located in areas of probable human exposure in the upland fill areas. The following information is needed for environmental characterization and assessment of the upland soils pathway:

- identify sampling location with a description of a specific location (a site map illustrating the sampling stations would also be helpful)
- type of sample collected (grab sample or composite)
- depths of sampling points; specify if sample is a grab or composite between specific depth ranges (e.g., 0-3 inches, 3-12 inches, etc.)
- sampling scheme if composite samples
- constituents analyzed for, analytical methods used, detection limits, and concentrations detected
- date of sampling event and site conditions at the time samples were collected
- type of soils

Kah Tai Lagoon Sediments Pathway

The extent of sediment contamination within the Kah Tai lagoon is unknown and represents a data gap. ATSDR defines sediment as “any solid material, other than waste material or waste sludge, below a water surface that has been naturally deposited in a waterway, water body, channel, ditch, wetland, or swell; or that lies on a bank, a beach, or flood way land where solids are deposited. In order to evaluate the potential for exposure of the public to Kah Tai lagoon sediments, samples should be collected from a shallow depth (0-3 inches).²

The proposed sediment sampling strategy adequately addresses the need for additional characterization of lagoon sediments. Sediment analysis of conventional metals and organics addresses potential constituents of concern.

Kah Tai Lagoon Biota

It is highly unlikely the lagoon supports a species of fish, crab, or shellfish which could potentially be harvested by recreational users of the Kah Tai park and lagoon. Therefore, in terms of public health implications, sampling of Kah Tai lagoon biota is not necessary at this time. If information becomes available indicating human consumption of Kah Tai lagoon biota, this media may warrant sampling in the future.

Conclusions

The *Draft Initial Investigation of Upland Soils and Sediments at Kah Tai Lagoon, Jefferson County* sufficiently addresses data gaps previously identified in a health consultation (February 2001) for Kah Tai Lagoon. Sampling of Kah Tai park upland soils for metals represents a reasonable approach for this initial investigation sampling event. Metals represent the top priority in terms of contaminants of potential concern for upland soils, and semi-volatiles would be a secondary choice. However, because nearby lagoon sediments are being sampled for semi-volatiles, this provides some degree of insurance that in the event high concentrations of contaminants are identified in sediments, they could be sampled in upland soils in the future.

The Kah Tai Lagoon poses an indeterminate public health hazard since the current extent of contamination present at the Kah Tai nature park has not been fully determined. Further characterization of upland park surface soils and lagoon sediments are necessary to adequately evaluate the potential public health implications of exposure to contaminants present within Kah Tai nature park. Additional sampling should be conducted from probable human exposure areas within Kah Tai park.

It would be helpful for future reference to establish specific sampling stations in relation to the general locations described in the 1986 sampling event. Sampling results of soils and lagoon sediments could be incorporated into a Geographic Information System (GIS) project to aid in evaluation and analysis of sampling results.

Recommendations/ Public Health Action Plan

- Further characterize the nature and extent of surface soil (a depth of 0-3 inches) contamination in the upland park fill area. Soil sampling should be conducted in probable human exposure areas within the upland fill areas of the park.
- Further characterize the nature and extent of Kah Tai lagoon sediments.
- Provide results of sampling event to DOH Office of Environmental Health Assessment, Site Assessment Section for review.

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Certification

This Kah Tai Nature Park, Port Townsend, Washington Health Consultation was prepared by the Washington State Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.

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The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health consultation and concurs with the findings.

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References

1. Washington State Department of Ecology. Draft Initial Investigation of Upland Soils and Sediments at Kah Tai Lagoon, Jefferson County Washington. February 2001.
2. Agency for Toxic Substances and Disease Registry Public Health Assessment Guidance Manual. 1992.